

FIG 1

32

30
↓

Bid table						
Bid id	player	items	value	types	select_flag	data(optional)
1	1	1,2,3,5	23	1	YES	...
2	3	2,3,6	34	1	NO	
3	2	1,3,5	42	1	NO	
4	3	4,6,7	18	1,2	YES	
...	
n	k	3,4,6	25	2	NO	

34

Proposal Generator
For each player and each type, generate all valid proposals

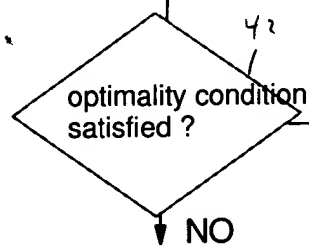
36
/

Integer program Formulator
Construct the objective function and constraint matrix

38
/

Integer program Solver
Driver program that calls commercial software such as OSL

40
/



44
/

Block 40

Solution Processor
Converts Integer programming solution in to list of selected bids

48
/

Table update processor
idf a bid is selected, set selected_flag = YES.
Otherwise set selecte_flag = NO

BLOCK 20

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FIG 2

Bid table

Bid id	player	items	value	types	select_flag	data(optional)
1	1	1,2,3,5	23	1	YES	...
2	3	2,3,6	34	1	NO	
3	2	1,3,5	42	1	NO	
4	3	4,6,7	18	1,2	YES	
...	
n	k	3,4,6	25	2	NO	

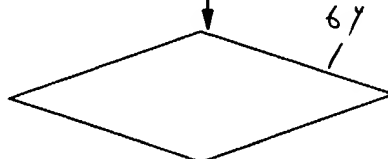
Initial Proposal Generator
Generate a set of valid proposals

Linear program Formulator
Construct the objective function and constraint matrix

Linear program Solver
Driver program that calls commercial software such as OSL
Return dual variables for item constraints and player constraints

Block 34

Adjust bid values
For each player, using adjusted bid values generate proposals that exceed the player's proposal threshold.



No

Block 20

yes

Otherwise augment constraint matrix and upjective function to include new proposals

Block 30

FIG 3

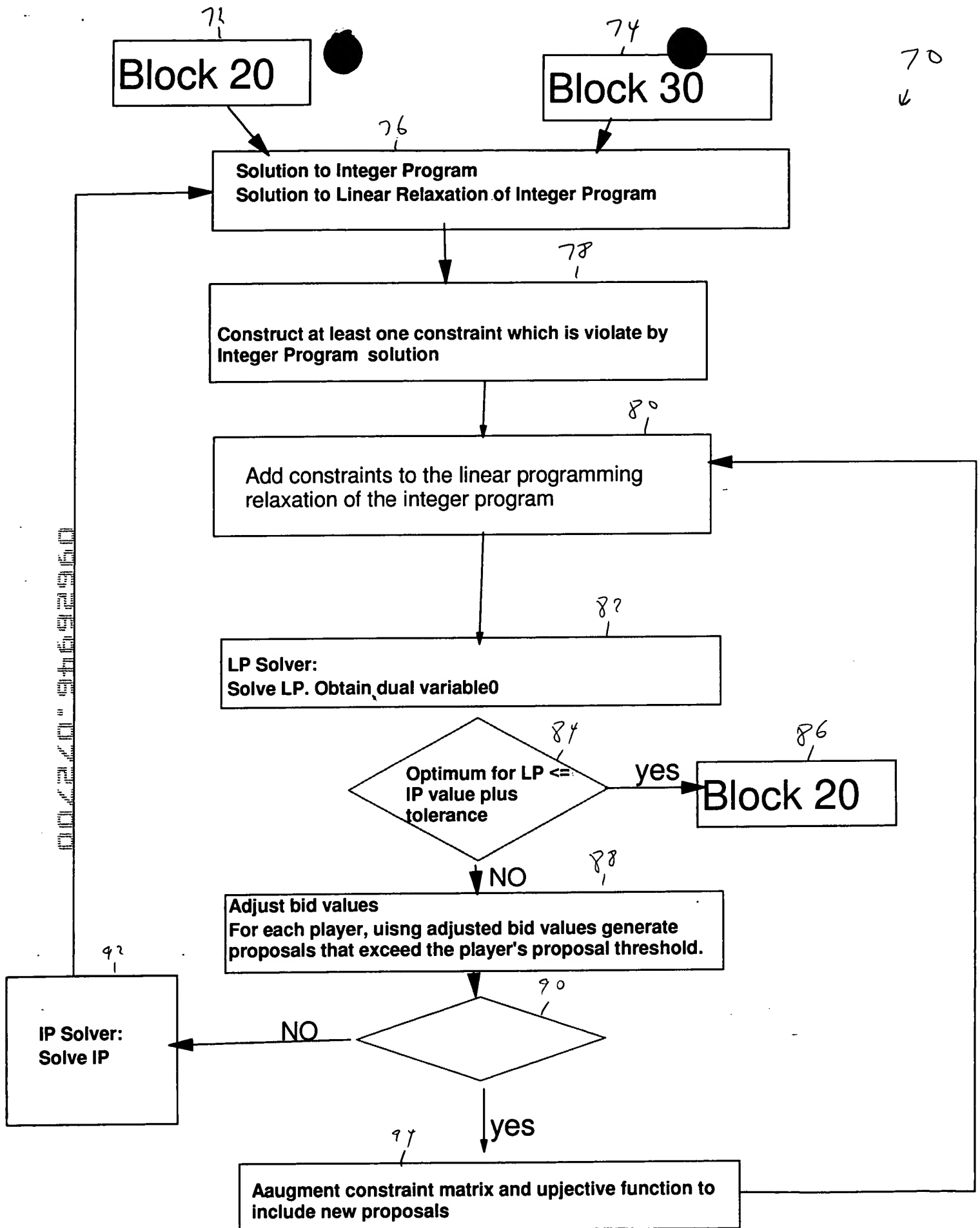


FIG 4

98
1

 10^2

104
1

106

108

FIG 5

W. G. L. 1993